

# COUNTRY ANALYSIS BRIEFS

## Philippines

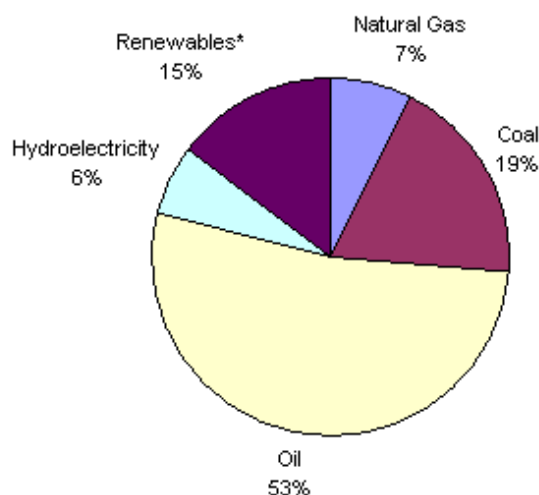
Last Updated: August 2008

### Background

**The Philippines has limited oil and natural gas resources and, consequently, imports most of its energy needs. To attain a measure of self-sufficiency, part of the strategy is to increase the country's oil and gas reserves by approximately 20 percent and to reduce coal imports by 20 percent.**

The Philippines' total consumption is dependent upon traditional hydrocarbon sources of energy. Oil consumption, at 53 percent, accounted for the majority of the Philippines' final energy consumption mix in 2005, followed by coal at 19 percent. Renewable energy sources comprised 15 percent of consumption, followed by natural gas and hydroelectric consumption at 7 percent and 6 percent, respectively. The updated Philippine Energy Plan of 2005, which is a major reform agenda of the Arroyo Administration, is designed to move towards energy independence by first attaining a level of 60 percent self-sufficiency by 2010. The plan indicates that between 2005 and 2014, the economy's final energy demand will grow at 4.7 percent per year. To help meet growth in demand, part of the strategy is to increase the country's oil and gas reserves by about 20 percent and to reduce coal imports by 20 percent. The development of biofuels, as mandated under the Biofuel Act of 2006, will also contribute to the energy mix needed to eventually meet the goal of self-sufficiency.

**Philippines Total Energy Consumption  
2005**



\* Renewables include solar, wind, wood, waste, and geothermal

Source: EIA International Energy Annual

The Spratly Islands, located in the South China Sea, are claimed in all or in part by China, Malaysia, the Philippines, Taiwan and Vietnam. All of the countries involved in the dispute believe that the area could hold significant natural resources, including hydrocarbons. The Philippines and China forged a three-year agreement in 2004 to conduct a Joint Marine Seismic Undertaking (JMSU) on potential petroleum resources in parts of the South China Sea, including the disputed Spratly Islands (see the Philippine National Oil Company's latest [Exploration and Production Map](#) for more details). When Vietnam objected to being excluded, it too became part of seismic survey. The Philippines is currently reviewing whether to extend the JMSU. See [South China Sea Regional Conflict and Resolution](#) for more on this topic.



## Oil

**Today, with the high price of oil making the area attractive to investment in oil and natural gas exploration, exploration activity in the Philippines has recovered to levels last seen in the mid-1970s. While new projects have revived oil production over the last several years, domestic oil supply remains modest compared to the country's needs.**

Domestic production of oil in the Philippines began in the 1970s but has been very limited. Between 1996 and 2000, the Philippines had no oil production. Recently production has increased to 23 thousand barrels per day (bbl/d) in 2007, primarily due to the development of new offshore deepwater oil deposits. The increased production volume is still modest, however, in relation to the country's needs which reached 336 thousand bbl/d in 2007, meeting only 7 percent of oil consumption. The Philippines is one of the few major oil-consuming countries in the region where oil consumption has been declining in the last decade.

### Sector Organization

The Philippine National Oil Company (PNOC) has traditionally dominated the oil sector, but market reforms instituted in 1988 aimed at deregulation have enticed new oil companies to the Philippines. PNOC also frequently pairs with foreign oil companies on major projects. The principal government agency in charge of monitoring the energy sector is the Philippine Department of Energy (PDoE). The PDoE is responsible for issuing production and exploration licenses and ensuring compliance of relevant legislation.

The government is promoting upstream exploration and development through Philippine Energy Contracting Rounds (PECR). Subsequent PECRs have resulted in 28 service contracts. As of 2007, programs included commitments for Singapore based Premier Oil to drill an exploration well in the Raygay Gulf, Malaysia's Petronas Carigali Overseas Bhd. to drill an exploration well in the offshore Mindoro and Japan Petroleum Exploration Philippines, Ltd. to drill an exploration well over the offshore Tanon Strait.

The Philippines is mostly a deregulated market, except for the price setting of petroleum products where oil companies are required to seek the government's consent. There is an informal cap on weekly price increases of 50 centavos per liter, especially on diesel. These frequent small price increases were seen by both sides as a reasonable compromise between industry and government, but wide price swings in the international market have strained this working compromise. In May 2008, oil companies broke from this pact and began raising prices more quickly to recover their losses from the record level of crude prices in the world market. Besides boosting inflation – which hit a nine-year high in May 2008 – such oil price increases have deteriorated the peso's purchasing power, essentially increasing costs of basic goods and services.

The Philippines does not subsidize gasoline, although as retail prices skyrocket, pressure from within the

government and the public to provide subsidies for fuel, power and liquefied petroleum gas (LPG) is building. Between January and June 2008, gasoline and diesel prices were raised 13 times for a total increase of 9 pesos for gasoline and 8 pesos for diesel. Refiners do not enjoy any protection through import duty differentials between products and crude. Both are charged the same rate of import duty of around 2-3 percent.

### Exploration and Production

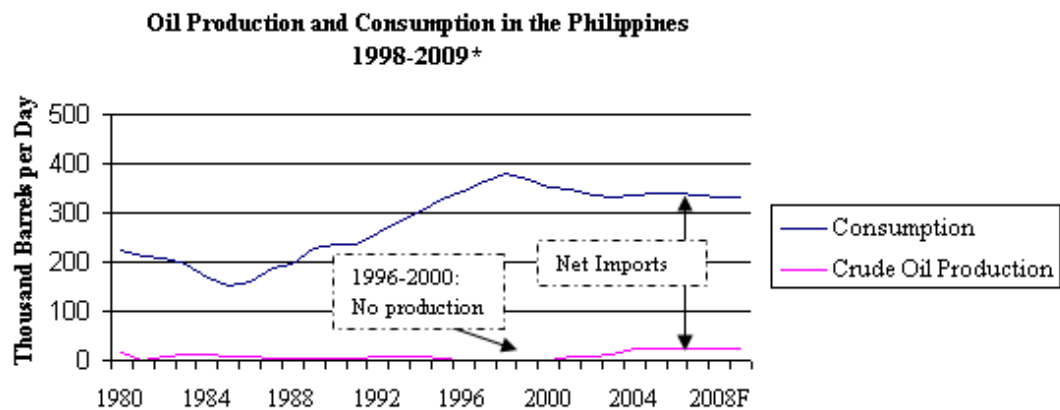
The waters surrounding the Philippines have until recently been ignored by oil investors for logistical and cost reasons. Previous exploration activity has focused primarily on the development of deep-sea oil deposits in the Malampaya Oil Rim, the country's largest oil-producing area. These deposits are located underneath the large Malampaya natural gas field. Today, with the high price of oil making the area attractive to investment in oil and gas exploration, activity in the Philippines has recovered to levels last seen in the mid-1970s.

The PDoE has awarded five petroleum exploration service contracts to four Filipino oil exploration companies in a bid to boost the Philippines' energy sources. The PDoE expects a total of projected seven-year exploration investments of \$79 million from these contracts in addition to a cumulative total of \$457 million of investments since 2004. There are now 33 active service contracts to date.

ExxonMobil said in June 2008 that it was set to start oil exploration in the Philippines and hoped to start drilling in mid-2009. ExxonMobil's entry would be a major milestone in oil development and exploration in the Philippines. Two other oil majors, Chevron Texaco and Shell, own majority stakes in the sizeable Malampaya field, with oil reserves of more than 41 million barrels and gas reserves of 2.3 – 4.4 trillion cubic feet, off the island of Palawan.

The government anticipates that the Galoc oilfield will have a production rate of 17,000 to 20,000 bbl/d. Galoc, combined with current oil production, will account for approximately 10 percent of the Philippines' oil demand. The start-up of the Galoc field in late 2008 alone is estimated to raise the Philippines' domestic output by over 70 percent. The Galoc field is located in water depths of 290 meters in the Northwest Palawan Basin and holds an estimated 23.5 million barrels of proven and probable oil reserves. It was discovered in 1981 by Cities Service Philippines. Nido currently holds a working interest of about 22 percent in the field. For more information see the [Galoc Project](#) home page. The Galoc field would be the first oilfield development in the country in 15 years, after West Linapacan (which was later shut down due to water seepage problems), and the first offshore development in seven years after the Malampaya gas field.

The Calauit field, holding an estimated 40 million barrels of oil, and operated by Australia-based Otto Energy, is due to come on-stream in 2009 after several delays. According to estimates from Otto Energy, the field is expected to flow at a rate of around 10,000 - 15,000 bbl/d when it comes online.



Source: EIA

\*2007 figures are estimates. 2008 and 2009 figures are forecasts.

### Oil Consumption

Through the 1990s, oil was the dominant fuel in the Philippines' primary energy consumption, but its share has dropped due to increased consumption of natural gas and coal in the power sector. Oil demand in the Philippines has been declining since 1998, when the country consumed a peak of 381 thousand bbl/d. In 2007, oil consumption fell to 336 thousand bbl/d, down from 340 thousand bbl/d in 2006. EIA anticipates consumption to continue its decline to 331 thousand bbl/d in 2009.

## Downstream/Refining

According to the Oil & Gas Journal, as of January 2008, the Philippines had 282,000 bbl/d of crude oil refining capacity at two facilities: Petron Corporation's 180,000 bbl/d plant in Limay, Bataan, and Shell's 102,000 bbl/d Tabango refinery. Chevron closed its Batangas refinery in 2003, although it maintains a retail presence. Petron, the Philippines' largest oil refining and marketing company, is formerly a state-owned enterprise. In the 1990s the Philippine National Oil Company (PNOC) and Saudi Aramco each acquired a 40 percent equity stake in the company, with the remaining 20 percent owned by stockholders. In March 2008, state-run Saudi Aramco sold its 40 percent stake in Petron to the London-based investment fund Ashmore. Petron supplies nearly 40 percent of the Philippines' fuel requirements.

The two largest proposed refinery projects are by Pilipinas Shell and Petron. After temporarily shelving plans for expansion, Pilipinas Shell is considering a \$321 million upgrade of its Tabango refinery so that it can produce the quality of fuel products needed to meet the sulfur and aromatics levels mandated by the country's Clean Air Act, to take effect in 2010/2011. Petron has spent \$100 million on upgrading its facilities to produce cleaner fuels. It is also implementing a \$300 million refinery upgrade plan. The planned upgrades follow from an earlier clean fuels project in 2005. Analysts have predicted that without a significant increase in refining capacity, the Philippines will experience a net deficit in oil products.

## Biofuels and Biodiesel

The adoption of the National Biofuels Act in January 2007 and the country's Renewable Energy Policy Framework has promoted the utilization of indigenous renewable energy resources, especially biofuels. Few countries in the region currently mandate biofuel use. China, the Philippines, and Thailand are the only three countries in the Asia Pacific region where ethanol is produced in significant volumes. Ethanol in the Philippines is mainly produced from sugarcane; however, efforts at ethanol feedstock diversification are being made with major investments in cassava, sweet sorghum, and corn. Currently the Philippines is a net importer of ethanol from China, Thailand, Brazil, Australia, and India.

Biodiesel is sourced from both local and foreign sources, with coconut as the predominant local feedstock. Diversification of biodiesel feedstock base is also under way. A unit of PNOC plans to start supplying jatropha based biodiesel starting in 2009. On the whole, biofuels are said to be about 1.5 times more expensive than oil products, a cost which the industry has difficulty passing on to consumers.

Under the National Biofuels Act of 2006, the Philippines plans to mandate diesel fuel with a minimum 1 percent biodiesel blend (B1) and gasoline with 5 percent bioethanol (E5) by 2009, further raising it to a minimum of 2 percent biodiesel blend (B2) and gasoline with 10 percent bioethanol blend (E10) by 2011. Progress has proceeded quickly on this front. Shell is currently marketing E10, and already exceeds the E5 mandate. Seaoil also has surpassed the mandated E5 and has developed its first E10 gasoline. Additionally, the government plans to build 10 ethanol plants.

## Natural Gas

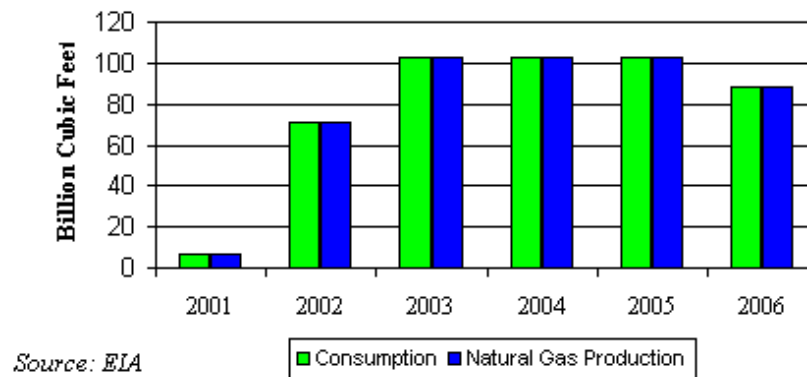
As of January 2008, the Oil & Gas Journal reported that the Philippines held an estimated 3.48 trillion cubic feet (Tcf) of natural gas reserves, most of which is found in its Malaympaya gas field. Natural gas accounted for 7 percent of the Philippine energy consumption in 2005.

## Production and Consumption

In 2006, gas production and consumption stood at 88.3 billion cubic feet (Bcf), a growth of over 200 percent since 1995. Philippine natural gas production took off considerably in 2001 with the launch of the Malaympaya gas field. Natural gas production in the Philippines currently is comprised mostly of condensate from this field. The Philippines consumes all gas that it produces domestically.

***The Philippines has one major natural gas field, Malaympaya, which began production in 2001. Nonetheless, with soaring domestic consumption, the Philippines consume all natural gas produced domestically.***

### Philippines Natural Gas Production and Consumption 1980-2006



#### Malampaya Deep Water Gas-to-Power Project

A major impetus for changes in the country's natural gas sector has been the Malampaya offshore natural gas field. The Malampaya gas field, discovered in 1992, lies 80 kilometers off the island of Palawan in the South China Sea. It holds an estimated 2.3 to 4.4 Tcf of gas reserves and 85 million barrels of condensate, which could provide as much as 3,000 megawatts of clean energy for the Luzon grid over a 20 year span.

The Malampaya Project was officially inaugurated on October 16, 2001 and has been operated by Shell (45 percent stake), Chevron (45 percent), and PNOC (10 percent). These companies have come together to form the \$4.5 billion Malampaya Deepwater Gas-to-Power Project. The project is the largest natural gas development project in Philippine history, and one of the largest-ever foreign investments in the country. Natural gas from Malampaya is pumped via a 312-mile sub-sea pipeline to a natural gas processing facility and three power plants in Batangas with a combined generating capacity of 2,700 megawatts (MW) while condensate production is exported to Thailand, Singapore, China as well as other Asian countries. See [South China Sea Oil & Gas](#) for more information.

In October 2006, it was announced that the Sampaguita natural gas field could hold up to 20 Tcf of possible natural gas reserves. The field was originally discovered in 1976 but never pursued because it was believed to hold so few reserves (originally estimated to be 3.5 to 5 Tcf). Forum Energy plans to test drill at Sampaguita in the future and to consider a liquefied natural gas (LNG) project if the testing confirms substantial natural gas reserves.

#### CNG Programs

The Land Transportation & Franchising Regulatory Board of the Philippines decided recently to promote the use of compressed natural gas (CNG) in vehicles belonging to public transport, with a view towards 100 percent use of this alternative fuel by its fleet by 2010. CNG has been specifically targeted as natural gas is produced domestically and can help reduce dependence on diesel. The National Gas Vehicle Program for Public Transport seeks to supply around 200 CNG-fed buses.

#### Pipelines

Thailand's PTT Public Company Ltd, formerly the state-owned Petroleum Authority of Thailand, is undertaking a feasibility study for a \$700 million pipeline project in the Philippines. The new pipeline would be built to pump gas from an offshore field to Manila. The project would be designed to move gas from a port base at Batangas south of Manila where it is already being piped ashore from the Malampaya gas field off the southwestern island of Palawan. See the [South China Sea Oil & Gas](#) and the [Thailand Country Brief](#) for more on this topic.

### Electricity

**The Philippines have an extensive geothermal resource that could make it the world's largest producer and user of geothermal energy for power generation. The updated**

In 2005, electricity generation reached 53.7 billion kilowatt hours. Thermal generation, mostly from natural gas, fuel, oil and coal, accounted for 68 percent of total electricity production, followed by hydropower (15 percent) and other sources (17 percent). According to the EIA, total electricity consumption, 47 billion kilowatt hours, accounted for 12 percent of the Philippines' final energy consumption in 2005. Currently only 1.4 megawatts (MW) of installed capacity is connected to the grid. This capacity is mostly used to energize rural villages and for "off-grid" electrifications under the Expanded Rural Electrification Program.

Renewable energy resources are estimated to have a power generation potential of more than 250,000 MW, with geothermal energy contributing the largest share. A primary goal of the Philippines is to become



***Philippine Energy Plan of 2005, which is a major reform agenda of the Arroyo Administration, is designed to move towards energy independence by first attaining a level of 60 percent self-sufficiency by 2010, partly through its geothermal resources.***

the world's largest producer and consumer of geothermal energy for power generation.

### Sector Organization

The Philippine Department of Energy sets overall policy goals in the energy industry, while the Energy Regulatory Commission is charged with regulating the electricity sector. After experiencing a severe power crisis in the early 1990s, the Philippine government set out to restructure and privatize the power sector with the aim of ensuring adequate electricity supply and increasing investment in energy infrastructure. After several years of legislative debate, the Electric Power Industry Reform Act (EPIRA) of 2001 was enacted.

EPIRA set into motion the deregulation of the power industry and the breakup and eventual privatization of state-owned enterprises. Under EPIRA, the government needs to privatize 70 percent of state-owned National Power Corporation's generating and contracted plants before an open access regime can start in the power sector. As of May 2008, the Power Sector Assets and Liabilities Management Corp had achieved a 42.8 percent privatization for power plants.

### Geothermal

In February 2007, the Philippine National Oil Company- Energy Development Corporation's first merchant power plant (49.37 MW) started its commercial operations providing additional power capacity for the Visayas grid. Plans for the Nasulo Geothermal Power Project in Palinpinon and the Mindanao III in Mt. Apo, North Cotabato are already in order, with the plants expected to be online in 2008 and 2011, respectively.

### Hydroelectric Power

As of 2006, the Philippines' total installed capacity was approximately 2,257 MW. The government has identified 70 hydropower projects with a potential capacity of 2,603.5 MW. Currently there are 14 mini-hydropower projects with completed feasibility studies, expected to provide an additional 237.56 MW to existing capacity.

## Profile

### Energy Overview

<b>Secretary of Energy</b>	Angelo T. Reyes (2007-Present)
<b>Proven Oil Reserves (January 1, 2008E)</b>	13 million barrels
<b>Oil Production (2007)</b>	23,000 barrels per day
<b>Oil Consumption (2007E)</b>	336,000 barrels per day
<b>Proven Natural Gas Reserves (January 1, 2008E)</b>	3. 48 trillion cubic feet
<b>Natural Gas Production (2006)</b>	88.30 billion cubic feet
<b>Natural Gas Consumption (2006)</b>	88.3 billion cubic feet
<b>Electricity Installed Capacity (2005)</b>	15.5 gigawatts
<b>Electricity Production (2005)</b>	53.7 billion kilowatt hours
<b>Electricity Consumption (2005)</b>	46.9 billion kilowatt hours
<b>Total Energy Consumption (2005)</b>	1.34 quadrillion Btus*, of which Oil (53%), Coal (19%), Other Renewables (15%), Natural Gas (7%), Hydroelectricity (6%), Nuclear (0%)
<b>Total Per Capita Energy Consumption (2005)</b>	15.2 million Btu
<b>Energy Intensity (2005)</b>	4,865 Btu per \$2000-PPP**
<b>Secretary of Energy</b>	Angelo T. Reyes (2007-Present)
<b>Proven Oil Reserves (January 1, 2008E)</b>	13 million barrels
<b>Oil Production (2007)</b>	23,000 barrels per day

## Oil and Gas Industry

<b>Organization</b>	The Philippine National Oil Company (PNOC) is the country's state-owned energy company responsible for oil and development of local energy resources. Petron, privatized in 1994, is the country's largest oil refining company. Private companies play an important role in both upstream and downstream oil and gas activities. National Power Corporation (Napocor) is the state-owned electric company.
<b>Foreign Company Involvement</b>	BP, Chevron Texaco, CNOOC, ExxonMobil, Forum Energy, Marubeni, Mitra Energy, PetroVietnam, Royal Dutch Shell, TAP Oil, Premier Oil, PEARL Oil, Murphy Oil, Otto Energy
<b>Major Oil Fields</b>	Malampaya, Galoc, Calautit
<b>Major Natural Gas Fields</b>	Malampaya, Sampaguita

\* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

\*\*GDP figures from OECD estimates based on purchasing power parity (PPP) exchange rates.

## Links

### EIA Links

[EIA - Country Information on the Philippines](#)

[EIA - South China Sea](#)

[EIA - Country Information on Thailand](#)

### U.S. Government

[CIA World Factbook - Philippines](#)

[U.S. State Department Background Notes - Philippines](#)

[U.S. Embassy in the Philippines](#)

### Foreign Government Agencies

[Philippine Department of Energy](#)

[Philippine Department of Foreign Affairs](#)

[Philippine Department of Trade and Industry](#)

[Philippine Department of Environment and Natural Resources](#)

### Oil and Natural Gas

[Malampaya Deepwater Gas-to-Power Project homepage](#)

[Petron Corporation](#)

[Philippine National Oil Company \(PNOC\)](#)

### Electricity

[National Power Corporation \(Napocor\)](#)

[National Transmission Corporation \(TransCo\)](#)

[Power Sector Assets and Liabilities Management Corporation \(PSALM\)](#)

## Sources

Asia Pulse

Asia Oil & Gas Monitor

Associated Press

Business Times

Business Wire

Business World

CIA World Factbook

Dow Jones Newswires

Economist Intelligence Unit

Financial Times

GNV Magazine

Global Insight Asia Economic Outlook

Oil and Gas Journal

Lloyd's List

Manila Bulletin Online

Manila Times

Philippine Daily Inquirer

Platts Energy Economist

Platts Global Power Report

Platts International Gas Report

Platts Oilgram News  
Platts Power in Asia  
Platts Renewable Energy Report  
Rueters  
Upstream  
U.S. Energy Information Administration  
World Gas Intelligence  
World Markets Research Centre

## Contact Info

cabs@eia.doe.gov  
(202)586-8800  
[cabs@eia.doe.gov](mailto:cabs@eia.doe.gov)